



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/597,374

07/10/2008

Chen Xu

CEDE 2132.8

9982

321 7590 04/27/2011

SENNIGER POWERS LLP  
100 NORTH BROADWAY  
17TH FLOOR  
ST LOUIS, MO 63102

EXAMINER

ZIMMERMAN, JOHN J

ART UNIT

PAPER NUMBER

1784

NOTIFICATION DATE

DELIVERY MODE

04/27/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspatents@senniger.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/597,374	<b>Applicant(s)</b> XU ET AL.	
	<b>Examiner</b> John J. Zimmerman	<b>Art Unit</b> 1784	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13, 15, 16, 18, 20 and 25 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-16, 18, 20 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/10/2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20061026, 20090520, 20101228</u> .                            | 6) <input type="checkbox"/> Other: ____.                          |

## **FIRST OFFICE ACTION**

### **Amendments**

1. This First Office Action is in response to the correspondence titled "PRELIMINARY AMENDMENT A" received July 21, 2006. Claims 1-13, 15-16, 18, 20 and 25 are pending in this application.

### **Information Disclosure Statement**

2. The information disclosure statements received October 26, 2006 and May 20, 2009 and December 28, 2010 have been considered. Reference JP 59-222594 was crossed out since it is not clear when a copy of this foreign patent was previously submitted in prior prosecution of the parent applications.

### **Specification**

3. The disclosure is objected to because of the following informalities: The status of the parent applications should be updated in the first paragraph of the specification (e.g. "now abandoned"). Appropriate correction is requested.

### **Claim Rejections - 35 USC § 112**

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Line 9 of claim 25 fails to specify what composition is contained in an amount between about 0.1 wt% and about 0.4 wt% in the Ni-based material. For purposes of prosecution, it is assumed that the composition is intended to be "P" (as recited for this range in the other independent claims). Correction is required.

#### **Claim Rejections - 35 USC § 103**

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-13, 15-16, 18, 20 and 25 are rejected under 35 U.S.C. 103(a) as obvious over Asahara (U.S. Patent 6,613,451) or Kodama (U.S. Patent 6,403,234), in view of applicant's disclosure of the prior art and Abys (U.S. Patent 6,399,220).

9. Asahara discloses plating a metal surface with a 0.5 to 3.0  $\mu\text{m}$  thick layer of electrolytic Ni-based material comprising Ni and P (e.g. see column 4, lines 6-26; specific thicknesses are disclosed in Table 10) and a preferably 1 to 2  $\mu\text{m}$  thick layer of Sn (e.g. see column 4, lines 43-

Art Unit: 1784

55). Asahara discloses that the nickel alloy can contain 0.05-20 % P with specific examples including 1.0 % P or less (e.g. see Tables 10-12). Asahara shows that the P content of the plating film can be adjusted by adding P-based additives to the plating bath (e.g. see column 5, lines 13-30). Kodama discloses plating a metal surface with a 0.3 to 2.0  $\mu\text{m}$  thick layer of electrolytic Ni-based material comprising Ni and P (e.g. see column 1, lines 56-67; specific thicknesses are disclosed in Tables 10-11) and a preferably 0.05 to 2  $\mu\text{m}$  thick layer of Sn (e.g. see column 1, lines 56-67; specific thicknesses in Tables 10-11). Kodama discloses that the nickel alloy can contain 0.05-15 % P with specific examples including 1.0 % P or less (e.g. see Tables 10-11). Kodama shows that the P content of the plating film can be adjusted by adding P-based additives to the plating bath (e.g. see column 4, lines 11-19). While Asahara and Kodama may not limit the P content of their nickel-phosphorus layers to between 0.1-0.4 wt.%, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 USPQ 549. In addition, a review of the applicant's disclosure shows no factual evidence establishing a patentable distinction for a P content of between 0.1-0.4 wt.% over the P content ranges taught by the Asahara and Kodama. Asahara and Kodama disclose their inventions are suitable for electrical terminals and electrical connectors and these uses are understood in the art to be electrical lead lines connecting electrical devices (electronic packages) to further electrical devices. Although the Asahara and Kodama may not disclose that Ni metal layers establish a diffusion couple with the Sn-based coating that promotes a bulk deficiency in the Sn-based coating and thereby an internal tensile stress in the Sn-based coating,

Art Unit: 1784

the applicant's disclosure shows that using Ni intermediate layers with Sn-based outer coatings will result in such an internal tensile stress. In addition, barring evidence to the contrary, whisker formation resistance would be inherent to the materials. Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977). The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer. *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112. Asahara and Kodama may also differ from the pending claims in that they may not require plating the nickel layer from a nickel sulfamate plating bath. Applicant, however, (e.g. see paragraphs [0031], [0034]-[0036]) discloses that the claimed nickel sulfamate bath is a known and commercially available nickel plating bath from Ethone, Inc. (e.g. see paragraphs [0032], [0035]-[0037]). Abys further confirms that nickel sulfamate baths (e.g. see column 4, lines 31-47; containing  $\text{Ni}(\text{NH}_2\text{SO}_3)_2$ ,  $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$ ,  $\text{H}_3\text{PO}_3$ , pH 2-2.5) are understood by those of ordinary skill in the art to be particularly suitable plating baths when applying nickel platings to electrical leads. In view of applicant's disclosure of the prior art and Abys, it would have been obvious to one of ordinary skill in the art at the time the invention was

Art Unit: 1784

made to alternately use commercially available nickel sulfamate plating baths for the nickel layers of Asahara and Kodama because it is economical and practical to use proven commercially available baths and also because Abys discloses that nickel sulfamate baths are particularly suitable for electrical leads. It also would have been obvious to one of ordinary skill in the art at the time the invention was made to use the manufacturer's recommended operating conditions and bath constituent concentrations for commercial baths. A review of applicant's disclosure shows no patentable distinction between the use of any particular nickel bath over any other nickel bath. In addition, a review of applicant's disclosure shows no indication that the claimed Ni bath compositions and operating parameters are patentably distinct from the admitted prior art commercially available Ethone, Inc., baths.

10. Regarding the use of applicant's disclosure of the prior art in the rejections, it is axiomatic that consideration of the prior art cited by the examiner must, of necessity, include consideration of the admitted state of the art found in applicant's specification, *In re Davis*, 305 F.2d 501, 134 USPQ 256 (CCPA 1962); *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986). Admitted knowledge in the prior art may be used in determining patentability of the claimed subject matter, *In re Nomiya*, 509 F.2d 566, 184 USPQ 607 (CCPA 1975).

### **Conclusion**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Jennifer McNeil

Art Unit: 1784

can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John J. Zimmerman  
Primary Examiner  
Art Unit 1784

/John J. Zimmerman/  
Primary Examiner, Art Unit 1784

jjz  
April 20, 2011